

## **Louisiana Department of Environmental Quality (LDEQ) Office of Environmental Services**

### **STATEMENT OF BASIS**

**Westlake Petrochemicals LLC**  
Ethylene Manufacturing Complex (Petro I/Petro II)  
Sulphur, Calcasieu Parish, Louisiana  
**Agency Interest Number:** 6164  
**Activity Number:** PER20090006  
**Proposed Permit Number:** 0520-00145-V5

#### **I. APPLICANT**

**Company:**  
Westlake Petrochemicals LLC  
Ethylene Manufacturing Complex (Petro I/Petro II)  
PO Box 2449  
Sulphur, Louisiana 70664-2449

**Facility:**  
Westlake Petrochemicals LLC  
Ethylene Manufacturing Complex (Petro I/Petro II)  
900 Hwy 108  
Sulphur, Calcasieu Parish, Louisiana  
Latitude: 30° 10' 44"  
Longitude: 93° 21' 41"

#### **II. FACILITY AND CURRENT PERMIT STATUS**

Westlake Petrochemicals LLC - Ethylene Manufacturing Complex (Petro I/Petro II), an existing ethylene manufacturing facility began operation in 1990. The Westlake Petrochemicals LLC - Ethylene Manufacturing Complex (Petro I/Petro II) currently operates under Permit No. 0520-00145-V4, issued February 4, 2005, PSD-LA-554(M3), issued March 12, 2004, and PSD-LA-595(M2), issued February 4, 2005.

The Westlake Ethylene Manufacturing Complex consists of two units, Petro 1 and Petro 2. Each unit can operate independently. However, when both are running, synergies between the two units are utilized to optimize ethylene production. The current permitted capacities for each unit are 1.5 billion pounds of ethylene per year for Petro 1, and 1.61 billion pounds of ethylene per year for Petro 2, for a combined facility-wide capacity of 3.11 billion pounds of ethylene per year.

The Petro 1 unit has six M.W. Kellogg millisecond furnaces, one ABB Lummus Furnace, two supplemental steam boilers, a wastewater treatment system, and corresponding process equipment. The furnaces crack fresh and recycled ethane propane feedstock and also generate 1500 psig steam. The efficiency of the furnaces is increased

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by mixing the feed with steam to lower the hydrocarbon's partial pressure. The emissions from the Kellogg burners are routed to a decoking drum, which has a two-stage cyclone separator to remove coke particles. The Lummus furnace decokes directly into its respective firebox.

The cracked gases exit the furnaces to be quenched in the primary quench exchangers to stop the cracking reaction. The cracked gases are then cooled further in the water-wash tower. Light oil is condensed and recovered as a fuel oil by-product (py oil).

After quenching, the gases are compressed in a series of centrifugal compression stages. Water and heavier hydrocarbons are condensed and recovered in compressor knockout drums. The compressed gas is then cooled and dried before being chilled in a demethanizer feed system where feed chilling, prefractionation, and hydrogen recovery are accomplished. The majority of the hydrogen rich stream from the final low temperature flash drum is delivered as product to the neighboring Citgo refinery while the remainder is used as fuel gas in the furnaces. The light hydrocarbon that was condensed in the demethanizer feed chilling train is separated by distillation in the demethanizer to produce a methane overhead stream and a C2 and heavier bottoms stream. The overhead stream is then expanded in a turbo expander to enhance its refrigeration value in the chilling train.

The C2 and heavier bottoms stream from the demethanizer is transferred to the deethanizer for separation of C2s from C3s and heavier hydrocarbons. The overhead vapor products are passed through the acetylene converter where acetylene is hydrogenated to ethane and ethylene. The ethane and ethylene are then separated by distillation. The ethane in the bottoms stream is vaporized and recycled to the furnaces for reprocessing. Polymer grade ethylene product is removed as a liquid and pumped by pipeline to users.

Utility supports for Petro 1 include a cooling tower, ethylene and propylene refrigeration systems, boiler feedwater treatment, steam generators, and a wastewater treatment plant that includes oil separation, steam stripping, and bio-treatment of wastewater prior to discharge.

The Petro 2 unit consists of five ABB Lummus Furnaces along with two supplemental steam boilers, a wastewater treatment system, and corresponding process equipment. Additionally, natural gasoline can be used for a feedstock to Petro 2, per previous approval, but has not been utilized to date due to changing economics.

The process in the Petro 2 unit is much the same as the Petro 1 unit, with only specific equipment differences. The Petro 2 unit also differs from Petro 1 in the back end, where the bottoms stream of the Petro 2 deethanizer and the bottoms stream of the Petro 1 deethanizer are combined and sent either to a flare or to a depropanizer. The overhead products from the depropanizer are passed through the methyl acetylene propydiene (MAPD) converter where the MAPD is converted to propane and propylene. The

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propane and propylene are routed through a C3 splitter for separation into commercial grade propylene and propane. The overhead product (propane) is recycled to the furnaces, while the bottoms products are sent to a debutanizer. The debutanizer overheads can either be sold as crude butadiene co-products or can be hydrogenated and routed back to the furnaces. The debutanizer bottoms are sold as pyrolysis gasoline co-product.

Utility supports at Petro 2 include a cooling tower, methane, ethane, and propylene refrigeration systems, boiler feedwater treatment, steam generators, and a complete wastewater plant that includes oil separation, steam stripping, and bio-treatment of wastewater prior to discharge.

Westlake Petrochemicals LLC - Ethylene Manufacturing Complex (Petro I/Petro II) is a designated Part 70 source. Several Part 70 permits have been issued to the operating units within the Westlake Complex. These include:

<b>Permit No.</b>	<b>Unit or Source</b>	<b>Date Issued</b>
0520-00145-V4	Ethylene Manufacturing Complex	Feb 4, 2005
PSD-LA-554(M3)	Petro I	Mar 12, 2004
PSD-LA-595(M2)	Petro II	Feb 4, 2005
2461-V2	Poly III	July 17, 2007
0520-00146-V1	Styrene Monomer Plant	July 17, 2007
0520-00156-V2	Marine Terminal	Aug 18, 2009
0520-00127-V1	Poly I & II	July 17, 2006

### **III. PROPOSED PROJECT/PERMIT INFORMATION**

#### **Application**

A permit application and Emission Inventory Questionnaire were submitted by Westlake Petrochemicals LLC on July 31, 2009 requesting a Part 70 operating permit renewal/modification. An addendum dated October 9, 2009 was also received.

#### **Project**

This is the Part 70 renewal permit for the Westlake Petrochemicals LLC Ethylene Manufacturing Complex. This renewal reconciles as-built changes associated with the NO<sub>x</sub> emission reductions previously approved as part of the Petro 1 Furnace Modernization Project as well as incorporates Petro 2 furnace NO<sub>x</sub> emission reductions. Additionally, this permit accomplishes several reconciliations based on more recent source specific data and the Notifications as applicable that have been approved since issuance of the current permit. These include:

- Removing Ethylene Furnace 6 (WPT1-04) from the permitted equipment (the furnace was never built).

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- Updating emissions from the Thermal Oxidizer that are a result of the change of facility emissions.
- Updating emissions for the Flare (WPT11-96). The previous emissions included a typographical error and an inadvertent omission of a hydrogen stream.
- Updating emissions for the Co Products Flare (30-94). The previous emissions included a typographical error.
- Correcting the emission estimate for Cooling Tower PA-1501 (WPT8-96). Previous emissions were incorrectly based on a cooling tower with four cells, instead of the five cells it actually has.
- Updating emissions for the Converter Regenerator Vent (WPT38-96). VOC emissions are being updated to reflect more recent data.
- Correcting emission estimates for the Py-Gas Storage Tank (WPT34-96) and Pyrolysis Gasoline Storage Tank (WPT3-04). Previously the emissions from these tanks were switched.
- Removing the Petro 1 and Petro 2 Wastewater pumps.
- Moving the Metering Skids vent stream from the Flare (EPN 10-89) to the Co-Products Flare (EPN 30-94) as the Metering Skids were always routed to the Co-Products Flare and correcting the calculations of both flares accordingly
- Removing the Tank WPT1-03 vent stream from the Co-Products flare as the tank was never built.
- Incorporating Pipeline Maintenance, which includes monthly flow meter calibrations, as a General Condition XVII activity.

**Proposed Permit**

Permit 0520-00145-V5 will be the renewal of Part 70 operating permit 0520-00145-V4 for the Westlake Petrochemicals Ethylene Manufacturing Complex (Petro I & II).

**Permitted Air Emissions**

Estimated emissions in tons per year are as follows:

<u>Pollutant</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
PM <sub>10</sub>	81.45	81.45	-
SO <sub>2</sub>	30.64	30.64	-
NO <sub>x</sub>	1266.92	1266.90	-0.02
CO	475.50	475.38	-0.12
VOC *	197.05	197.83	+0.78

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**\*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):**

Pollutant	Before	After	Change
1,1,1-trichloroethane	<0.01	<0.01	-
1,3-butadiene	10.92	10.94	+0.02
Acetaldehyde	0.01	0.01	-
Acrolein	0.01	0.01	-
Benzene	5.48	5.49	+0.01
Bromoform	0.16	0.17	+0.01
Chloroform	0.10	0.10	-
Chromium VI (and compounds)	0.001	0.001	-
Ethylbenzene	0.16	0.16	-
Formaldehyde	0.17	0.17	-
n-Hexane	0.23	0.23	-
Hydrogen Sulfide	-	<0.01	-
Manganese (and compounds)	0.001	0.001	-
Methyl Tert-Butyl Ether	-	0.12	+0.12
Naphthalene	0.68	0.68	-
Nickel (and compounds)	0.001	0.001	-
Styrene	0.59	0.58	-0.01
Sulfuric Acid	0.01	<0.01	-0.01
Toluene	0.95	0.92	-0.03
Xylene (mixed isomers)	0.05	0.05	-
Zinc (and compounds)	0.001	0.001	-
Aldehydes	-	0.02	+0.02
Total	19.52	19.65	+0.13

#### **IV REGULATORY ANALYSIS**

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT64 Loading Losses	LAC 33:III.21	DOES NOT APPLY. VOCs loaded have a TVP <1.5 psia (LAC 33:III.2107)
EQT62, EQT51, EQT93 Pyrolysis Gasoline Tank	40 CFR 60 Subpart Kb	EXEMPT. After the compliance dates specified in 40 CFR 63.1102, a storage vessel that must be controlled according to the requirements of this subpart and subpart Ka or Kb of 40 CFR 60 is required to comply only with the storage vessel requirements of 40 CFR 63 Subpart YY. (40 CFR 63.1100(g)(1)(ii))
EQT63 PFO Storage Tank	40 CFR 60 Subpart Kb  LAC 33:III.21	DOES NOT APPLY. Tank capacity is >40,000 gallons and its partial pressure of VOCs is <0.51 psia  DOES NOT APPLY. The vapor pressure of the liquid at storage conditions is <1.5 psia
EQT98 Gasoline Tank	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons.
EQT47 Diesel Firewater Pump	40 CFR 60 Subpart III	DOES NOT APPLY - This subpart applies to owners/operators of stationary internal combustion engines that are ordered after July 11, 2005 and is modified, reconstructed, or built after April 1, 2006. The engine was built prior to 2006 and, therefore, this rule is not applicable. (40 CFR 60.4200)
	40 CFR 63 Subpart ZZZZ	DOES NOT APPLY. Regulation applies to Major Source of HAPs but this specific stationary RICE unit is an existing stationary compression ignition RICE; per 40 CFR 63.6590(b)(3) unit does not have to meet the requirements of this regulation or 40 CFR 63 Subpart A. No initial notification is required.

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT47 Diesel Firewater Pump	LAC 33:III.15	DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
	LAC 33:III.51	EXEMPT. Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT48 Flare		EXEMPT. The flare is used as a control device to achieve compliance with an emission limitation or standard. However, the sources routed to the flare are exempt from CAM requirements because they are subject to an emissions limitation or standard, specifically 40 CFR 61 Subpart FF and 40 CFR 63 Subpart YY, which was proposed after November 15, 1990. (40 CFR 64)
	LAC 33:III.15	DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
EQT49, EQT31 Propanol Storage Tank	40 CFR 60 Subpart Kb 40 CFR 63 Subpart YY	DOES NOT APPLY. Tank capacity is <19,813 gallons. DOES NOT APPLY. This unit is not an affected source category as defined by 40 CFR 63.1103(a) through (h).
	LAC 33:III.21	DOES NOT APPLY. The vapor pressure of the liquid at storage conditions is <1.5 psia
	LAC 33:III.51	DOES NOT APPLY. This source does not emit any LTAPs.
EQT38 Furnace	40 CFR 60 Subpart RRR	EXEMPT. This source is routed to a distillation unit subject to NSPS Subpart NNN and has no other releases to the atmosphere except pressure relief valves. This source must comply with 40 CFR 60.705(r) only (40 CFR 63.700(c)(5))

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT38 Furnace	40 CFR 63 Subpart YY	EXEMPT. Ethylene cracking furnaces are in the ethylene production source category but all ethylene cracking furnaces, including emissions during decoking operations, are not subject to the requirements of this regulation. (40 CFR 63.1103(e)(1)(ii)(J))
LAC 33:III.15	DOES NOT APPLY. This combustion source emits < 5 tpy SO2. (LAC 33:III.1502.A.3)	
LAC 33:III.51	DOES NOT APPLY. Tank does not store an organic liquid (LAC 33:III.2103)	EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT57, EQT60, EQT56, EQT58. EQT59 Acid Storage Tanks	40 CFR 60 Subpart Kb 40 CFR 63 Subpart YY LAC 33:III.21	DOES NOT APPLY. This unit is not an affected source category as defined by 40 CFR 63.1103(a) through (h) DOES NOT APPLY. Tank does not store an organic liquid (LAC 33:III.2103)
EQT50 Stormwater Holding Tank	40 CFR 60 Subpart Kb 40 CFR 61 Subpart FF	DOES NOT APPLY. Tank capacity is >40,000 gallons and its partial pressure of VOCs is <0.51 psia After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT50 Stormwater Holding Tank	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWVW) is exempt from the provisions of this regulation.
EQT39 Furnace	40 CFR 63 Subpart YY	EXEMPT. Ethylene cracking furnaces are in the ethylene production source category but all ethylene cracking furnaces, including emissions during decoking operations, are not subject to the requirements of this regulation. (40 CFR 63.1103(e)(1)(ii)(J))
	LAC 33:III.15	DOES NOT APPLY. This combustion source emits < 5 tpy SO2. (LAC 33:III.1502.A.3)
	LAC 33:III.51	EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT52 Cracking Tar Drum	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))
		After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
	40 CFR 61 Subpart FF LAC 33:III.21	DOES NOT APPLY. Tank capacity is <250 gallons. (LAC 33:III.2103)
EQT54 Converter	40 CFR 63 Subpart YY	DOES NOT APPLY. This unit is not an affected source category as defined by 40 CFR 63.1103(a) through (h)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
Regenerator Vent	LAC 33:III.21	EXEMPT. Vent gas stream has a combined weight of VOC <=100 lb (45.4 kg) in any continuous 24-hour period. (LAC 33:III.2115.H.1.c)
EQT40, EQT41, EQT42, EQT105 Furnace	40 CFR 63 Subpart YY	EXEMPT. Ethylene cracking furnaces are in the ethylene production source category but all ethylene cracking furnaces, including emissions during decoking operations, are not subject to the requirements of this regulation. (40 CFR 63.1103(e)(1)(ii)(J))
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO2. (LAC 33:III.1502.A.3)
LAC 33:III.51		EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT45 Cooling Tower	40 CFR 63 Subpart Q	DOES NOT APPLY. Chromium-based water treatment chemicals are not used. (40 CFR 63.400)
LAC 33:III.13		EXEMPT. Maintain emissions less than 20% average opacity. These requirements do not apply to a source that does not meet the opacity requirements due only to the presence of uncombined water
EQT53 Flare	40 CFR 64	EXEMPT. The flare is used as a control device to achieve compliance with an emission limitation or standard. However, the sources routed to the flare are exempt from CAM requirements because they are subject to an emissions limitation or standard, specifically 40 CFR 61 Subpart FF and 40 CFR 63 Subpart YY, which was proposed after November 15, 1990. (40 CFR 64)
EQT18, EQT19, EQT20, EQT21, EQT22, EQT23	40 CFR 60 Subpart RRR	EXEMPT. This source is routed to a distillation unit subject to NSPS Subpart NNN and has no other releases to the atmosphere except pressure relief valves. This source must comply with 40 CFR 60.705(r) only (40 CFR 63.700(c)(5))

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
Furnaces	40 CFR 63 Subpart YY	EXEMPT. Ethylene cracking furnaces are in the ethylene production source category but all ethylene cracking furnaces, including emissions during decoking operations, are not subject to the requirements of this regulation. (40 CFR 63.1103(e)(1)(ii)(J))
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
LAC 33:III.51		EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT36 Furnace	40 CFR 60 Subpart RRR	EXEMPT. This source is routed to a distillation unit subject to NSPS Subpart NNN and has no other releases to the atmosphere except pressure relief valves. This source must comply with 40 CFR 60.705(f) only (40 CFR 63.700(c)(5))
		EXEMPT. Ethylene cracking furnaces are in the ethylene production source category but all ethylene cracking furnaces, including emissions during decoking operations, are not subject to the requirements of this regulation. (40 CFR 63.1103(e)(1)(ii)(J))
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
LAC 33:III.51		EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT24, EQT17 Boilers	40 CFR 63 Subpart DDDDD	DOES NOT APPLY. 40 CFR 63 Subpart DDDDD was vacated by the D.C. Circuit Court in 2007. Under the provisions of this vacated rule, this source was considered an existing large gaseous liquid fuel unit and was only subject to the initial notification requirements.

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT24, EQT17 Boilers	LAC 33:III.15	DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
EQT25 Decoking Drum	LAC 33:III.51 LAC 33:III.51	EXEMPT: Emissions from combustion sources burning Group I virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a) DOES NOT APPLY. This source does not emit a Class I or Class II air toxic pollutant for which total facility-wide emissions exceed the MER. Therefore, no MACT standards are required. (LAC 33:III.5109.A)
EQT26 Cooling Tower	40 CFR 63 Subpart Q 63.400	DOES NOT APPLY. Chromium-based water treatment chemicals are not used. (40 CFR 63.400)
		EXEMPT. Maintain emissions less than 20% average opacity. These requirements do not apply to a source that does not meet the opacity requirements due only to the presence of uncombined water
EQT27 Oil/Water Separator	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
	LAC 33:III.21	EXEMPT. True vapor pressure of volatile organic compounds less than 0.5 psia (3.4 kPa) (LAC 33:III.2109.B.3)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT28 Emergency Diesel Generator	40 CFR 60 Subpart III	DOES NOT APPLY - This subpart applies to owners/operators of stationary internal combustion engines that are ordered after July 11, 2005 and is modified, reconstructed, or built after April 1, 2006. The engine was built prior to 2006 and, therefore, this rule is not applicable. (40 CFR 60.4200)
	40 CFR 63 Subpart ZZZZ	DOES NOT APPLY. Regulation applies to Major Source of HAPs but this specific stationary RICE unit is an existing stationary compression ignition RICE; per 40 CFR 63.6590(b)(3) unit does not have to meet the requirements of this regulation or 40 CFR 63 Subpart A. No initial notification is required.
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
LAC 33:III.51		EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT37 Thermal Oxidizer	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHPAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT29 Diesel Firewater Pump	40 CFR 60 Subpart III	DOES NOT APPLY - This subpart applies to owners/operators of stationary internal combustion engines that are ordered after July 11, 2005 and is modified, reconstructed, or built after April 1, 2006. The engine was built prior to 2006 and, therefore, this rule is not applicable. (40 CFR 60.4200)
	40 CFR 63 Subpart ZZZZ	DOES NOT APPLY. Regulation applies to Major Source of HAPs but this specific stationary RICE unit is an existing stationary compression ignition RICE; per 40 CFR 63.6590(b)(3) unit does not have to meet the requirements of this regulation or 40 CFR 63 Subpart A. No initial notification is required.
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
LAC 33:III.51		EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT30. EQT35 Flare	40 CFR 64	EXEMPT. The flare is used as a control device to achieve compliance with an emission limitation or standard. However, the sources routed to the flare are exempt from CAM requirements because they are subject to an emissions limitation or standard, specifically 40 CFR 61 Subpart FF and 40 CFR 63 Subpart YY, which was proposed after November 15, 1990. (40 CFR 64)
LAC 33:III.15		DOES NOT APPLY. This combustion source emits < 5 tpy SO <sub>2</sub> . (LAC 33:III.1502.A.3)
EQT32.EQT33 Frac Tanks	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is >20,000 gallons and <40,000 gallons and its partial pressure of VOCs is <2.18 psia. (40 CFR 60.110(b)(c))

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT78, EQT79 Oily Sludge Tanks	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
LAC 33:III.21		DOES NOT APPLY. The vapor pressure of the liquid at storage conditions is <1.5 psia
	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
EQT34 Petro I Analyzers	40 CFR 63 Subpart YY	DOES NOT APPLY. Gas streams exiting process analyzers are specifically excluded from the definition of "process vent" and are also not included under the definition of "equipment" with relation to equipment leak detection
	LAC 33:III.21	DOES NOT APPLY. Fugitive emissions are specifically excluded from the definition of "waste gas stream"
EQT43, EQT44 Boilers	40 CFR 63 Subpart DDDDD	DOES NOT APPLY. 40 CFR 63 Subpart DDDDD was vacated by the D.C. Circuit Court in 2007. Under the provisions of this vacated rule, this source was considered an existing large gaseous liquid fuel unit and was only subject to the initial notification requirements.

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT43, EQT44 Boilers	LAC 33:III.51	EXEMPT: Emissions from combustion sources burning Group 1 virgin fossil fuels are currently exempt from the requirements of Chapter 51 per LAC 33:III.5105(B)(3)(a)
EQT101, EQT104 Demthanizer Tower Vent	LAC 33:III.21	EXEMPT: This source is subject to LAC 33:III.2147 as well as 40 CFR 60 Subpart NNN. Per LAC 33:III.2147, this state rule does not apply to any reactor process or distillation operation that is subject to NSPS subpart NNN.
	LAC 33:III.21	DOES NOT APPLY: Waste gas streams that are required by another federal or state regulation to implement controls that reduce VOCs to a more stringent standard are not subject to this standard.
EQT102 Oily Sludge Processing System		After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHPAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
EQT88, EQT89 Oil/Water Separator	40 CFR 61 Subpart FF 40 CFR 60 Subpart Kb	DOES NOT APPLY: Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))  After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHPAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
	40 CFR 61 Subpart FF	

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT88, EQT89 Oil/Water Separator	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
EQT90, EQT66 Spent Caustic Tank	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
EQT91 Wastewater Equalization Tank	40 CFR 61 Subpart FF	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
EQT91 Wastewater Equalization Tank	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
EQT91 Wastewater Equalization Tank	40 CFR 61 Subpart FF	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT92 IGF Effluent Tank	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110(b))
		After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
	40 CFR 61 Subpart FF	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
EQT77 Process Equalization Tank	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
	LAC 33:III.21	DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT80 Oily Sludge Tank	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))	
LAC 33:III.21 33:III.2153.G.6	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIVWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)	
LAC 33:III.21	DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)	
EQT81 CPI 8702L A&B	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))	
LAC 33:III.21 33:III.2153.G.6	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIVWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)	
EQT82 IGF 8718L	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))	

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT82 IGF 8718L		After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
LAC 33:III.21		EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
LAC 33:III.21		DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)
EQT65 Caustic Scrubber		After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
LAC 33:III.21		EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
EQT67 Pyrolysis Oil	LAC 33:III.21	DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
Storage Tank		
EQT68, EQT69 Slop Oil Tanks	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))  After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
LAC 33:III.21		EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
LAC 33:III.21		DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)
EQT70, EQT71 CPI Sludge Tanks	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))  DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)
EQT72 Equalization Tank	LAC 33:III.21	

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
EQT73 Retention Equalization Tank	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
	LAC 33:III.21	DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)
EQT74 Tar Tank	40 CFR 60 Subpart Kb	DOES NOT APPLY. Tank capacity is <19,813 gallons. (40 CFR 60.110b(b))
	40 CFR 61 Subpart FF	After the compliance date specified in 40 CFR 63.1102, compliance with 40 CFR 63.1103(e) shall constitute compliance with the Benzene Waste Operations NESHAP (40 CFR 61 Subpart FF) for waste streams that are subject to both the control requirements of 40 CFR 63.1103(e)(3) for ethylene production sources and the control requirements of 40 CFR 61 Subpart FF. (40 CFR 63.1100(g)(6)(ii))
	LAC 33:III.21	EXEMPT. Any component of a wastewater storage, handling, transfer, or treatment facility that is subject to the wastewater provisions of HON, or 40 CFR 61 Subpart FF (BWON), or 40 CFR 60 Subpart YYY (SOCMIWW) is exempt from the provisions of this regulation. (LAC 33:III.2153.G.6)
	LAC 33:III.21	DOES NOT APPLY. The vessel stores volatile organic compounds with a maximum true vapor pressure <1.5 psia. (LAC 33:III.2103.B)
EQT75 Metering Skids	LAC 33:III.51	DOES NOT APPLY. This source does not emit any LTAPS. (LAC 33:III.5107 & 5109)
EQT76	LAC 33:III.21	DOES NOT APPLY. VOCs loaded have a TVP <1.5 psia. (LAC 33:III.2107)

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**Table 1. Explanation for Exemption Status or Non-Applicability of a Source**

ID No:	Requirement	Notes
Pyrolysis Oil Loading		

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**Prevention of Significant Deterioration/Nonattainment Review**

The Ethylene Manufacturing complex operates under Permits PSD-LA-554(M3) and PSD-LA-595(M2). Provisions of the PSD permits are included in this permit. Emissions increases from the proposed modification will be below the PSD significance level. PSD review is not required.

**Streamlined Equipment Leak Monitoring Program**

Emissions from fugitive components are subject to LAC 33:III.2122, 40 CFR 60 Subpart VV, 40 CFR 61 Subpart J and V, and 40 CFR 63 Subpart UU. Westlake will comply with the most stringent regulations (40 CFR 63 Subpart UU) as outlined in the Streamlined Equipment Leak Monitoring Program.

**MACT Requirements**

Various sections of TAP/HAP emissions from the facility are controlled by 40 CFR 63 subparts YY and UU which are determined as MACT. Also, 40 CFR 60 Subpart NNN is determined as MACT for the applicable equipment.

**Air Quality Analysis**

Emissions associated with the proposed permit renewal were reviewed by the Air Quality Assessment Division to ensure compliance with the NAAQS and AAS. LDEQ did not require the applicant to model emissions.

**General Condition XVII Activities**

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

**Insignificant Activities**

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

**V. PERMIT SHIELD**

This facility did not request a Permit Shield.

**VI. GLOSSARY**

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

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**Maximum Achievable Control Technology (MACT)** – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

**Hydrogen Sulfide (H<sub>2</sub>S)** – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

**New Source Review (NSR)** – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C (“Prevention of Significant Deterioration of Air Quality”) and D (“Nonattainment New Source Review”).

**Nitrogen Oxides (NO<sub>x</sub>)** – Compounds whose molecules consist of nitrogen and oxygen.

**Organic Compound** – Any compound of carbon and another element. Examples: Methane (CH<sub>4</sub>), Ethane (C<sub>2</sub>H<sub>6</sub>), Carbon Disulfide (CS<sub>2</sub>)

**Part 70 Operating Permit** – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥ 10 tons per year of any toxic air pollutant; ≥ 25 tons of total toxic air pollutants; and ≥ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

**PM<sub>10</sub>** – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

**Potential to Emit (PTE)** – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

**Prevention of Significant Deterioration (PSD)** – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

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Sulfur Dioxide ( $\text{SO}_2$ ) – An oxide of sulfur.

Sulfuric Acid ( $\text{H}_2\text{SO}_4$ ) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.